

REMARKS

Applicant respectfully requests further examination and reconsideration in view of the arguments set forth fully below. Claims 1-16, 18-21 and 23 were previously pending in this Application. Within the Office Action, Claims 1-16, 18-21 and 23 have been rejected. Accordingly, Claims 1-16, 18-21 and 23 are now pending in the application.

Rejections Under 35 U.S.C. § 102

Within the Office Action, Claims 21 and 23 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,271,893 to Kawaguchi et al. (hereinafter “Kawaguchi”). The Applicant respectfully disagrees.

Kawaguchi teaches a digital television broadcasting system. Kawaguchi teaches that a broadcasting system 1 includes a digital TV transmitter 2 for transmitting a transport stream including a plurality of channels from a satellite space station 3 to a multiplicity of digital TV receivers 4. [Kawaguchi, col. 3, lines 30-43, Figure 1] Kawaguchi also teaches a second transmission media 5 other than the satellite 3 to inform the TV receivers 4 of irregular broadcasts. [Kawaguchi, col. 3, lines 30-43, Figure 1] Each receiver 4 includes a signal processor 211, an output portion 212, a controller 225, and a communication interface 228. The signal processor 211 processes the transport stream received from the satellite 3 to provide a video signal and an audio signal for a specified channel, and the output portion 212 provides a video and an audio output in response to the video signal and the audio signal provided by the signal processor 211. The controller 225 controls the signal processor 211, a memory 226, I/O devices 227, and power supply 230. [Kawaguchi, col. 4, lines 1-8 and lines 24-28] As is well known in the art, a signal processor is not configured to provide control functionality. Instead, a signal processor is configured for appropriately processing received signals. The controller 225 is configured to provide control functionality to the receiver 4.

The receiver 4 functions in three different power modes. In a first power mode, power is always supplied by the power supply 230 to the controller 225, the I/O devices 227, and the communication interface 228. [Kawaguchi, Figure 1; col. 4, lines 38-43] In a second power mode, the controller 225 closes switch 231 so that power is supplied to the signal processor 211 in addition to the elements always powered on in the first power mode. [Kawaguchi, Figure 1; col. 4, lines 50-52] In a third power mode, the controller 225 closes switch 231 and switch 232 so that power is supplied to the signal processor 211, the output portion 212, and all the elements always powered on in the first power mode. [Kawaguchi, Figure 1; col. 4, lines 50-59]

Regardless of the power mode in which the receiver 4 operates, the controller 225 is always powered on. Kawaguchi does not teach a power mode in which *the controller 225 is in a stand-by mode*, e.g. the controller is powered off, and Kawaguchi does not teach a transition from one power mode to another power mode in which *the controller 225 is powered on in direct response to a wake-up instruction*.

In contrast to the teachings of Kawaguchi, the low-power broadcast receiver of the presently claimed invention is directed to a broadcast receiver capable of operating in a power-saving standby mode while retaining the ability to receive broadcast program, software and firmware updates. The receivers have a broadcast interface that incorporates an update sensor adapted to sense broadcast updates. The receiver includes a wake-up switch that deprives the most power hungry circuits, *including the controlling processor*, of power in the standby mode. The update sensor, remains active at all times. If the receiver receives a wake-up instruction in the standby mode, then the update sensor closes the wake-up switch to provide power to the controlling processor to receive the update in direct response to the wake-up instruction. As described above, Kawaguchi does not teach a power mode in which *the controller 225 is in a stand-by mode*, e.g. the controller is powered off, and Kawaguchi does not teach a transition from one power mode to another power mode in which *the controller 225 is powered on in direct response to a wake-up instruction*. **Kawaguchi teaches that the controller 225 is always powered on.**

Within the Response to Arguments section of the Office Action, it is stated that a signal processor controls the processing of signals and thus can be considered a control processor of the receiver. The Applicant respectfully disagrees. Kawaguchi teaches that the subscriber television receiver 4 includes a received signal processor 211 and a controller 225. [Kawaguchi, col. 4, lines 24-34, Figure 1] Kawaguchi teaches that the received signal processor 211 comprises a tuner 213 for selecting a specified one of the received transport streams; a VIF/SIF for extracting the PSI and SI/EPG data, and a video signal and an audio signal for a channel specified by a control signal from the controller 225 from the selected transport stream and a video signal processor 215. [Kawaguchi, col. 4, lines 1-9, Figure 1] Kawaguchi teaches that the controller 225 **controls** the received signal processor 211. [Kawaguchi, col. 4, lines 30-31] Accordingly, the received signal processor 211, as taught by Kawaguchi, is not a **control processor**. As discussed above, as is well known in the art, a signal processor is not configured to provide control functionality. Instead, a signal processor is configured for appropriately processing received

signals. This is consistent with the teachings of Kawaguchi, which specify that *the controller 225 controls the received signal processor 211*. [Kawaguchi, col. 4, lines 30-31] **Kawaguchi teaches that the controller 225 of Kawaguchi is always powered on.**

The amended independent Claim 21 is directed to a broadcast receiver. The broadcast receiver of Claim 21 comprises means for monitoring a user-input device for a power-on instruction, display means for indicating a power-on condition for the receiver in response to the power-on instruction, means for monitoring the user-input device for a power-off instruction, means responsive to the power-off instruction for indicating a power-off condition for the receiver and means for monitoring a broadcast communication channel for a wake-up instruction with the receiver in the power-off condition, wherein the means for monitoring the broadcast communication channel includes a power switch for providing power to a control processor in direct response to the wake-up instruction. As described above, Kawaguchi does not teach a power mode in which the controller is powered off, and Kawaguchi does not teach a transition from one power mode to another power mode in which the controller is powered on in direct response to a wake-up instruction. **Kawaguchi teaches that the controller 225 is always powered on.** For at least these reasons, the independent Claim 21 is allowable over the teachings of Kawaguchi.

Claim 23 is dependent on the independent Claim 21. As described above, the independent Claim 21 is allowable over the teachings of Kawaguchi. Accordingly, Claim 23 is also allowable as being dependent on an allowable base claim.

Rejections Under 35 U.S.C. § 103

Within the Office Action, Claims 1, 2, 4-9, 11 and 13-15 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,658,231 to Nakatsuyama et al. (hereinafter "Nakatsuyama") in view of Kawaguchi. The Applicant respectfully disagrees.

Nakatsuyama teaches a receiver for user-demand information and entertainment system using wide area digital broadcast. Nakatsuyama teaches that the information system provides selected information to individual users through a receiver 40. Program data is broadcast to the receiver 40 according to a program data signal 36. Index data is receiver specific information and includes a receiver identifier, as well as time and tuner information, which is used to receive, download and store the user's selected program. [Nakatsuyama, col. 5, lines 59-61] Nakatsuyama further teaches that the time and channel components identify the appropriate channel and time to which the receiver tunes to receive the index data associated with the receiver's identifier, allowing the receiver to operate in a low power mode. [Nakatsuyama, col. 7, lines 32-39]

Nakatsuyama also teaches that the low power mode is achieved by earlier sending time information, via the index data, which allows the receiver to operate in low power mode until the appropriate time. *Nakatsuyama does not teach an update sensor which operates a wake-up switch in direct response to a wake-up instruction.*

As discussed above, Kawaguchi teaches a digital television broadcasting system. Kawaguchi teaches that a broadcasting system 1 includes a digital TV transmitter 2 for transmitting a transport stream from a satellite space station 3 to a multiplicity of digital TV receivers 4. [Kawaguchi, col. 3, lines 30-43, Figure 1] Kawaguchi also teaches a second transmission media 5 other than the satellite 3 to inform the TV receivers 4 of irregular broadcasts. [Kawaguchi, col. 3, lines 30-43, Figure 1] Kawaguchi teaches that the second transmission media 5 may be any transmission media which is other than the broadcasting satellite 3 and which causes the power consumption in each TV receiver 4 during waiting for a communication from the earth station 2 to be less than the power consumption in each TV receiver 4 during receiving the program information without using program contents. [Kawaguchi, col. 3, lines 43-50] Kawaguchi teaches maintaining an alteration time list 340 and at each TV receiver 4, an update time list. [Kawaguchi, col. 7, lines 6-23] Kawaguchi teaches that at the update time, the switch 231 is turned on. [Kawaguchi, col. 7, lines 24-39, Figure 7A] Kawaguchi does not teach a means for monitoring a broadcast communication channel for a wake-up instruction with the receiver in the power-off condition. *Kawaguchi teaches that the switch 231 is turned on at the update time, not in direct response to a wake-up signal.*

There is no hint, teaching or suggestion to warrant the combination of Nakatsuyama and Kawaguchi. As discussed above, Nakatsuyama teaches sending preselected user-specific information to a user's personal receiver. [Nakatsuyama, col. 2, lines 3-11] Kawaguchi contrarily teaches a digital television broadcasting system which transmits a transport stream to receivers. [Kawaguchi, col. 2, lines 11-13] Accordingly, there is no hint, teaching or suggestion to warrant the combination of the user-specific transmission of Nakatsuyama with the digital television broadcasting system of Kawaguchi. It is simply not permissible to conclude that this is an obvious combination without a hint, teaching or suggestion to warrant the combination.

It is well settled that to establish a *prima facie* case of obviousness, three basic criteria must be met:

- 1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;
- 2) there must be a reasonable expectation of success; and

- 3) the prior art reference, or references, must teach or suggest all the claim limitations. MPEP § 2143.

The burden of establishing a *prima facie* case of obviousness based on the teachings of Nakatsuyama and Kawaguchi has not been met within the Office Action.

Within the Office Action, the motivation that is cited to justify the combination of Nakatsuyama and Kawaguchi is to provide an efficient way to power up and power down the electronic circuitry associated with receiving program information. This is the result of the combination, which is an improper basis for justifying the combination. In order to be proper, as stated within section 2143 of the MPEP, quoted above, “there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.” Here, within the Nakatsuyama or Kawaguchi references, there is no suggestion or motivation within the references themselves to warrant their combination. Further, there is no suggestion or motivation in the knowledge that was generally available to one of ordinary skill in the art to combine the references. By justifying the combination with the result of the combination, this result being the advantages of the presently claimed invention, it is clear that the combination of Nakatsuyama and Kawaguchi has been based on hindsight. Only with the presently claimed invention as a template would one find the “motivation” or result provided within the Office Action. Accordingly, the combination of Nakatsuyama with Kawaguchi is improper.

Furthermore, “[t]he test for an implicit showing [of a teaching, suggestion or motivation] is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” In re Kotzab, 217 F.3d 1365, 1370 (Fed. Cir. 2000). Moreover, “particular findings must be made as to the reason the skilled artisan, with no knowledge of the claimed invention, would have selected these components for combination in the manner claimed.” Kotzab at 1371.

In Kotzab, the claims focused on an injection molding method using a single temperature sensor to control a plurality of flow control valves. The reference taught a multizone device having multiple sensors, each of which controlled an associated flow control valve, and also taught that one system may be used to control a number of valves. The court found there was insufficient evidence to show that one sensor was the same as one system. Although the control of multiple valves by a single sensor rather than by multiple sensors was a “technologically simple concept,” there was no finding “as to the specific understanding or principle within the knowledge of the skilled artisan” that would have provided the motivation to use a single sensor as the system to control more than one valve. Kotzab at 1371.

In the present case, as in Kotzab, there are no showings of particular findings that a skilled artisan, with no knowledge of the claimed invention, would have selected the components from Nakatsuyama and Kawaguchi for combination in the manner claimed. As discussed above, Nakatsuyama teaches sending preselected user-specific information to a user's personal receiver. Kawaguchi teaches a digital television broadcasting system, not a receiver, which transmits a transport stream to receivers. This is comparable to the court in Kotzab rejecting the argument that one sensor was the same as one system and stating that there was no finding as to a specific understanding or principle that would have provided the motivation to use a single sensor as a system to control more than one valve. The court did not allow a system to be interchanged with a sensor nor should within the present case, a broadcast system be interchanged with a receiver. To conclude that this is obvious based on the teachings of these references is to use hindsight based on the teachings of the present invention and to read much more into Nakatsuyama and Kawaguchi than their actual teachings.

There is no motivation to combine the teachings of Nakatsuyama and Kawaguchi. As discussed above, Nakatsuyama teaches sending preselected user-specific information to a user's personal receiver. Kawaguchi teaches a digital television broadcasting system which transmits a transport stream to receivers. A person skilled in the art would have no motivation to combine the teachings of Kawaguchi with the teachings of Nakatsuyama. Accordingly, the rejection of Claims 1, 2, 4-9, 11 and 13-15 based on the combination of Nakatsuyama and Kawaguchi, is not proper and should be withdrawn.

Even if considered proper, the combination of Nakatsuyama and Kawaguchi does not teach a low-power broadcast receiver which includes a wake-up sensor and a wake-up switch as claimed within the present claims. As described above, Nakatsuyama does not teach a wake-up sensor which sends a wake-up signal to a wake-up switch in direct response to a first selected signal. Kawaguchi teaches a digital television broadcasting system. On page 7 of the Office Action, as related to Claim 1, Kawaguchi is cited for having a wake-up switch to receive a wake-up signal and closing the wake-up switch in response to receiving the wake-up signal.

Within the Office Action, an analogy is made in which the tuning system, demodulator, and logic unit of Nakatsuyama are the same as the claimed wake-up sensor, and the index signal of Nakatsuyama is the same as the claimed first selected signal. Claims 1 and 8 are specifically directed to "a wake-up sensor having a sensor input terminal coupled to the interface circuit input terminal and a wake-up sensor output terminal, wherein the wake-up sensor produces a wake-up signal on the wake-up sensor output terminal directly in response to receiving a first selected signal" (emphasis added). However, when the tuning system, demodulator, and logic unit of

Nakatsuyama, which the Examiner contends is the same as the claimed wake-up sensor, receives the index signal, which the Examiner contends is the same as the claimed first selected signal, *a wake-up signal is not directly produced by the tuning system, demodulator, and logic unit.* Instead, the index signal is stored by the receiver 40 and only at the time designated in the index signal does the receiver 40 “wake-up” to download the program data. *Nakatsuyama does not teach a wake-up sensor which produces a wake-up switch in direct response to a wake-up instruction.* As related to Claims 1 and 8, Kawaguchi is cited for teaching a wake-up switch. Kawaguchi is not cited for teaching a wake-up sensor as claimed in Claims 1 and 8.

In contrast to the teachings of Nakatsuyama, Kawaguchi and their combination, the low-power broadcast receiver of the presently claimed invention is directed to a broadcast receiver capable of operating in a power-saving standby mode while retaining the ability to receive broadcast program, software and firmware updates. The receiver has a broadcast interface that incorporates an update sensor adapted to sense broadcast updates. The receiver includes a wake-up switch that deprives the most power hungry circuits of power in the standby mode. The update sensor, remains active at all times. If the receiver receives a wake-up instruction in the standby mode, then the update sensor closes the wake-up switch to provide power to those components needed to receive the update. *As described above, neither Nakatsuyama, Kawaguchi nor their combination teach a wake-up sensor which sends a wake-up signal to a wake-up switch in direct response to a first selected signal.*

The independent Claim 1 is directed to a broadcast receiver. The broadcast receiver of Claim 1 comprises a power supply having a power-supply output terminal and a broadcast interface circuit. The broadcast interface circuit includes an interface-circuit input terminal adapted to receive a plurality of broadcast communications signals, each signal modulated about a selected carrier frequency, a tuner having a tuner input terminal coupled to the interface circuit input terminal, wherein the tuner selects one of the signals and provides the selected signal on a tuner output terminal, a wake-up sensor having a sensor input terminal coupled to the interface circuit input terminal and a wake-up sensor output terminal, wherein the wake-up sensor produces a wake-up signal on the wake-up sensor output terminal directly in response to receiving a first selected signal and a wake-up switch having a wake-up switch input terminal coupled to the power-supply output terminal, a wake-up switch output terminal, and a wake-up switch control terminal coupled to the wake-up sensor output terminal to receive the wake-up signal, wherein the wake-up switch is closed in direct response to receiving the wake-up signal thereby providing power from the power-supply output terminal to the wake-up switch output terminal. As described above, neither Nakatsuyama, Kawaguchi nor their combination teach a

wake-up sensor which sends a wake-up signal to a wake-up switch **in direct response** to a first selected signal. For at least these reasons, the independent Claim 1 is allowable over Nakatsuyama, Kawaguchi and their combination.

Claims 2 and 4-7 are all dependent on the independent Claim 1. As described above, the independent Claim 1 is allowable over the teachings of Nakatsuyama, Kawaguchi and their combination. Accordingly, Claims 2 and 4-7 are all also allowable as being dependent on an allowable base claim.

The independent Claim 8 is directed to a broadcast communication network. The broadcast communication network of Claim 8 comprises a broadcast head-end adapted to broadcast a plurality of signals about a corresponding plurality of carrier frequencies, the signals including an occasional wake-up instruction and a plurality of receivers adapted to receive the plurality of signals. It is specified in Claim 8 that each receiver includes a power supply having a power-supply output terminal and a broadcast interface circuit. The broadcast interface circuit includes an interface-circuit input terminal adapted to receive a plurality of broadcast communications signals, each signal modulated about a selected carrier frequency, a wake-up sensor having a sensor input terminal coupled to the interface circuit input terminal and a wake-up sensor output terminal, wherein the wake-up sensor produces a wake-up signal on the wake-up sensor output terminal **directly in response to receiving a first selected signal** and a wake-up switch having a wake-up switch input terminal coupled to the power-supply output terminal, a wake-up switch output terminal, and a wake-up switch control terminal coupled to the wake-up sensor output terminal to receive the wake-up signal, wherein the wake-up switch is closed in direct response to receiving the wake-up signal thereby providing power from the power-supply output terminal to the wake-up switch output terminal. As described above, neither Nakatsuyama, Kawaguchi nor their combination teach a wake-up sensor which sends a wake-up signal to a wake-up switch **in direct response** to a first selected signal. For at least these reasons, the independent Claim 8 is allowable over Nakatsuyama, Kawaguchi and their combination.

Claims 9, 11 and 13-15 are all dependent on the independent Claim 8. As described above, the independent Claim 8 is allowable over the teachings of Nakatsuyama, Kawaguchi and their combination. Accordingly, Claims 9, 11 and 13-15 are all also allowable as being dependent on an allowable base claim.

Within the Office Action, Claims 16 and 18-20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawaguchi in view of U.S. Patent No. 6,054,981 to Kimoto et al. (hereinafter "Kimoto"). It is recognized within the Office Action that Kawaguchi does not

teach an indicator for indicating various power modes. Kimoto appears to be cited for this proposition. However, as described above, Kawaguchi does not teach a power mode in which **the controller** is powered off. Kawaguchi also does not teach a transition from one power mode to another power mode in which *the controller is powered on in direct response to a wake-up instruction*. **Kawaguchi teaches that the controller 225 is always powered on.** Kimoto also does not teach a transition from one power mode to another power mode in which the controller is powered on in direct response to a wake-up instruction. Accordingly, neither Kawaguchi, Kimoto nor their combination teach providing power to a control processor **in direct response** to receiving a wake-up instruction.

The amended independent Claim 16 is directed to a method of reducing power usage in a broadcast receiver. The method of Claim 16 comprises monitoring, in a standby mode, a user-input device for a power-on instruction, indicating a power-on condition for the receiver in response to the power-on instruction, monitoring the user-input device for a power-off instruction, indicating a standby condition for the receiver in response to the power-off instruction, monitoring, with the receiver in the standby condition, a broadcast communication channel for a wake-up instruction and providing power to a first portion including a control processor of the receiver and indicating a standby condition for the receiver while receiving a receiver update, **in direct response to receiving the wake-up instruction**. As described above, neither Kawaguchi, Kimoto nor their combination teach providing power to a control processor **in direct response** to receiving a wake-up instruction. For at least these reasons, the independent Claim 16 is allowable over the teachings of Kawaguchi, Kimoto and their combination.

Claims 18-20 are all dependent on the independent Claim 16. As described above, the independent Claim 16 is allowable over the teachings of Kawaguchi, Kimoto and their combination. Accordingly, Claims 18-20 are all also allowable as being dependent on an allowable base claim.

Within the Office Action, Claims 3, 10 and 12 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakatsuyama in view of Kawaguchi, and further in view of U.S. Patent Publication No. 2002/0073423 to Krakirian. Claim 3 is dependent on the independent Claim 1. Claims 10 and 12 are both dependent on the independent Claim 8. As described above, the independent Claims 1 and 8 are both allowable over the teachings of Nakatsuyama, Kawaguchi and their combination. Accordingly, Claims 3, 10 and 12 are all also allowable as being dependent on an allowable base claim.

For the reasons given above, the applicant respectfully submits that the claims are now in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, they are encouraged to call the undersigned at (408) 530-9700 to discuss the same so that any outstanding issues can be expeditiously resolved.

Respectfully submitted,
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